

IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A data logging system, comprising:

an implantable medical device having a constant current source connected to ~~driven by an oscillator for producing a current signal modulated with encoded data between~~ two electrodes adapted for internal disposition and contact with body fluids, ~~the current signal causing the~~ current source being driven by an oscillator for producing a current signal modulated with encoded data between the two electrodes to cause corresponding modulated potential signals detectable at a skin surface; and,

an external data logging device for affixation to a patient having incorporated therein a data communications interface for demodulating potential signals sensed at a skin surface location to extract encoded data therefrom, and circuitry for storing the encoded data in a data logging storage medium.

2. (Original) The system of claim 1 wherein the implantable medical device is a cardiac device with a sensing channel for sensing cardiac electrical activity and further wherein data reflective of the sensed cardiac activity can be encoded and transmitted to the external data logging device.

3. (Original) The system of claim 2 wherein the potential signals are transmitted in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the amplitude of the carrier waveform.

4. (Original) The system of claim 2 wherein the potential signals are transmitted in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the frequency of the carrier waveform.

5. (Original) The system of claim 2 wherein the potential signals are transmitted in the form of a digital pulse train modulated with the digitally encoded data by varying the frequency of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

6. (Original) The system of claim 2 wherein the potential signals are transmitted in the form of a digital pulse train modulated with the digitally encoded data by varying the width of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.
7. (Original) The system of claim 2 wherein the potential signals are transmitted in the form of a digital pulse train modulated with the digitally encoded data by varying the position of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.
8. (Original) The system of claim 2 wherein the implantable cardiac device comprises circuitry for performing an impedance measurement related to a physiological variable by injecting current between two electrodes from a constant current source and further wherein the constant current source is used for transmitting potential signals modulated with digitally encoded data to the external data logging device
9. (Original) The system of claim 2 wherein the data logging storage medium of the external data logging device is removable.
10. (Original) The system of claim 9 wherein the data logging storage medium is a flash ROM.
11. (Currently Amended) A method for data logging comprising:
sensing cardiac electrical activity with an implanted cardiac device;
encoding data reflective of the sensed cardiac activity;
driving a constant current source ~~with an oscillator to produce a current signal modulated with the encoded data between~~ connected to two internally disposed electrodes in contact with body fluids, the current signal, thereby causing the current source being driven by an oscillator for producing a current signal modulated with encoded data between the two electrodes to cause corresponding electrical potentials that can be sensed at a skin surface location;
receiving and demodulating sensed potential signals at a skin surface location to derive the encoded data therefrom; and,

storing the derived encoded data in a data logging storage medium of an external data logging device.

12. (Original) The method of claim 11 further comprising removing and replacing the data logging storage medium at periodic intervals.

13. (Original) The method of claim 11 further comprising transmitting the potential signals in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the amplitude of the carrier waveform.

14. (Original) The method of claim 11 further comprising transmitting the potential signals in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the frequency of the carrier waveform.

15. (Original) The method of claim 11 further comprising transmitting the potential signals in the form of a digital pulse train modulated with the digitally encoded data by varying the frequency of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

16. (Original) The method of claim 11 further comprising transmitting the potential signals in the form of a digital pulse train modulated with the digitally encoded data by varying the width of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

17. (Original) The method of claim 11 further comprising transmitting the potential signals in the form of a digital pulse train modulated with the digitally encoded data by varying the position of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

18. (Original) The method of claim 11 further comprising performing an impedance measurement related to a physiological variable by injecting current between two electrodes from a constant current source and using the constant current source for transmitting potential signals modulated with encoded data to the external data logging device.